



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P186	FOR FURTHER ACTION		See Form PCT/PEAA16
International application No. PCT/GB2004/003269	International filing date (day/month/year) 28.07.2004	Priority date (day/month/year) 28.07.2003	
International Patent Classification (IPC) or national classification and IPC G06T15/00			
Applicant VISUALIZE IT LTD			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 807 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 02.05.2005		Date of completion of this report 15.12.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840		Authorized Officer Kulak, E Telephone No. +49 30 25901-410 	

IAP5 Rec'd PCT/PTO 27 JAN 2006

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**International application No.
PCT/GB2004/003269**10/566296****Box No. I Basis of the report**

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements* of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*.

Description, Pages

1-9 as originally filed

Claims, Numbers

1-9 as originally filed

Drawings, Sheets

12, 22 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
☐ the claims, Nos.
☐ the drawings, sheets/figs
☐ the sequence listing (specify):
☐ any table(s) related to sequence listing (specify):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
☐ the claims, Nos.
☐ the drawings, sheets/figs
☐ the sequence listing (specify):
☐ any table(s) related to sequence listing (specify):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**International application No.
PCT/GB2004/003269

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	5-8
	No: Claims	1-4,9
Inventive step (IS)	Yes: Claims	-
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	-

2. Citations and explanations (Rule 70.7):**see separate sheet**

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/GB2004/003269

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 The following document is referred to in this communication:

- D1: DE 198 39 397 A (READYMIX BETONBAUTEILE GMBH) 2 March 2000 (2000-03-02)**
- D2: "Computer Graphics: Principles and Practice", Foley, vanDam, Feiner, Hughes, 1990**
- D3: SIMON GIBSON, TOBY HOWARD, ROGER HUBBOLD: "Image-based photometric reconstruction for mixed reality" ACM SIGGRAPH 2001, CONFERENCE ABSTRACTS AND APPLICATIONS, August 2001 (2001-08), pages 1-24, XP002314886 LOS ANGELES**
- D4: WOLFRAM KRESSE, DR. STEFAN MÜLLER, ANDRZEJ TREMBILSKI: "ARIS: Augmented Reality Image Synthesis Through Illumination Reconstruction" CG TOPICS, March 2001 (2001-03), pages 12-13, XP002314887**
- D5: KLAUS H. AHLERS, ANDRÉ KRAMER, DAVID E. BREEN ET. AL.: "Distributed augmented reality for collaborative design applications" TECHNICAL REPORT, EUROPEAN COMPUTER-INDUSTRY RESEARCH CENTER GMBH, 1995, XP002314888**
- D6: US-B1-6 281 904 (SEIDL ROBERT ET AL) 28 August 2001 (2001-08-28)**

2 NOVELTY

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-4,9 is not new in the sense of Article 33(2) PCT.

2.1. Document 1 (D1) discloses the subject-matter of claim 1:

A mapping arrangement for defining selected physical characteristics of a surface to be imaged (D1, claim 1), the arrangement comprising a template device for temporary application to said surface (D1, Figure 1; see further Re Item VIII, paragraph 1.2); said template device being configured and constructed such that, when photographed in situ on said surface, it provides a computer supplied with a

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No. :

PCT/GB2004/003269 :

digital image of the photograph with data from which one or more of said physical characteristics can be automatically computed (D1, Figure 2-3; D1, column 1, lines 34-38, "Fluchtpunkte"="Vanishing Points"), thereby permitting the computer to utilise software, requiring inputs indicative of said characteristics, capable of changing the appearance of the imaged surface in accordance with user selection (D1, Figure 4-6; D1, column 1, lines 41-42 and 64-68; column 3, lines 54-68) .

A similar objection and reasoning applies to the corresponding method claim 9.

2.2. Document 1 (D1) discloses the subject-matter of claim 2:

An arrangement according to claim 1 wherein the template device comprises a sheet carrying markings of known dimensions and at known relative orientations, thereby permitting geometric characteristics of the surface to be accurately defined (D1, column 1, lines 45-49).

2.3. Document 1 (D1) discloses the subject-matter of claim 3:

An arrangement according to claim 1 or claim 2 wherein the said markings include components defining a rectangular frame with opposing sides being substantially parallel, thereby permitting the accurate derivation of perspective data for the surface (D1, Figures 2, 9-12).

2.4. Document 1 (D1) discloses the subject-matter of claim 4:

An arrangement according to claim 3 wherein the parallel sides are substantially aligned with perspective defining edges of said surface (D1, Figures 9-12 and D1, column 4, line 40- column 5, line 11).

3. INVENTIVE STEP

The claims 5-7 not involve an inventive step in the sense of Article 33(3) PCT.

3.1. Regarding claim 5:

In the prior art, it is standard to model perspective geometry and lighting of real scenes together and to apply the modelled characteristics during rendering of augmented surfaces, as exemplified in D2 (page 612, section 14.4.2, the first paragraph), D3 (page 3,7 and 12), D4 (figure 2 and page 13, the first column, the second paragraph), D5 (page 14, lines 4-7) and D6 (abstract, the sentence starting with "similarly, the true..."). Therefore, it is obvious that the skilled person

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No. :

PCT/GB2004/003269 :

in the art, starting with the subject-matter of D1 would use the source illumination model to have a more photo-realistic effect at the rendering stage. :

3.2. Regarding claims 6,7:

D1 displays the source and target scenes over a network of perspective lines built by vanishing points and reference measures. This network itself is a directional indicator to indicate the orientation of patterns or ornamentation incorporated by means of the software into surface treatments to be displayed on the image of said surface, as seen in Figures 3 and 4. Therefore, the perspective lines of the network have the same functionality as the arrowheads disclosed in the current application. Representing the surface texture orientations with arrowheads instead of such a perspective network is only a non-technical display alternative and does not involve any inventive step.

4. INDUSTRIAL APPLICABILITY:

The current set of claims 1-9 discloses technical features to implement a texture mapping method using physical characteristics of source surfaces and therefore, the subject matter of claims 1-9 is industrially applicable.

Re Item VIII

1. Clarity:

1.1. According to the Rule 6.2a) PCT, claims shall not, except where absolutely necessary, rely, in respect of the technical features of the invention, on references to the description or drawings. In particular, they shall not rely on such references as: "as described in part..of the description," or "as illustrated in figure.. of the drawings." Therefore, claim 8 is not allowed.

1.2. The wording "template device" in claims 1,2,5,6,9 is too broad. The intended meaning is a calibration pattern. However, this is not understood by the skilled person from the current wording. A more understandable formulation may be incorporated from the description page 2, lines 28-31.

IAP5 Rec'd PCT/PTO 27 JAN 2006

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No. .
PCT/GB2004/00326910/566296**Box No. I Basis of the opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No. :
PCT/GB2004/003269

**Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-9
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations**see separate sheet**

Box No. VIII Certain observations on the international application

**The following observations on the clarity of the claims, description, and drawings or on the question whether the
claims are fully supported by the description, are made:****see separate sheet**

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/003269**Re Item V****Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1 The following document is referred to in this communication:**

- D1: DE 198 39 397 A (READYMIX BETONBAUTEILE GMBH) 2 March 2000 (2000-03-02)**
- D2: "Computer Graphics: Principles and Practice", Foley, vanDam, Feiner, Hughes, 1990**
- D3: SIMON GIBSON, TOBY HOWARD, ROGER HUBBOLD: "Image-based photometric reconstruction for mixed reality" ACM SIGGRAPH'2001, CONFERENCE ABSTRACTS AND APPLICATIONS, August 2001 (2001-08), pages 1-24, XP002314886 LOS ANGELES**
- D4: WOLFRAM KRESSE, DR. STEFAN MÜLLER, ANDRZEJ TREMBILSKI: "ARIS: Augmented Reality Image Synthesis Through Illumination Reconstruction" CG TOPICS, March 2001 (2001-03), pages 12-13, XP002314887**
- D5: KLAUS H. AHLERS, ANDRÉ KRAMER, DAVID E. BREEN ET AL.: "Distributed augmented reality for collaborative design applications" TECHNICAL REPORT, EUROPEAN COMPUTER-INDUSTRY RESEARCH CENTER GMBH, 1995, XP002314888**
- D6: US-B1-6 281 904 (SEIDL ROBERT ET AL) 28 August 2001 (2001-08-28)**

2 NOVELTY

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-4,9 is not new in the sense of Article 33(2) PCT.

2.1. Document 1 (D1) discloses the subject-matter of claim 1:

A mapping arrangement for defining selected physical characteristics of a surface to be imaged (D1, claim 1), the arrangement comprising a template device for temporary application to said surface (D1, Figure 1); said template device being configured and constructed such that, when photographed in situ on said surface, it provides a computer supplied with a digital image of the photograph with data

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/003269

from which one or more of said physical characteristics can be automatically computed (D1, Figure 2-3; D1, column 1, lines 34-38, "Fluchtpunkte"="Vanishing Points"), thereby permitting the computer to utilise software, requiring inputs indicative of said characteristics, capable of changing the appearance of the imaged surface in accordance with user selection (D1, Figure 4-6; D1, column 1, lines 41-42 and 64-68) .

A similar objection and reasoning applies to the corresponding method claim 9.

2.2. Document 1 (D1) discloses the subject-matter of claim 2:

An arrangement according to claim 1 wherein the template device comprises a sheet carrying markings of known dimensions and at known relative orientations, thereby permitting geometric characteristics of the surface to be accurately defined (D1, column 1, lines 45-49).

2.3. Document 1 (D1) discloses the subject-matter of claim 3:

An arrangement according to claim 1 or claim 2 wherein the said markings include components defining a rectangular frame with opposing sides being substantially parallel, thereby permitting the accurate derivation of perspective data for the surface (D1, Figures 2, 9-12).

2.4. Document 1 (D1) discloses the subject-matter of claim 4:

An arrangement according to claim 3 wherein the parallel sides are substantially aligned with perspective defining edges of said surface (D1, Figures 9-12 and D1, column 4, line 40- column 5, line 11).

3. INVENTIVE STEP

The claims 5-7 not involve an inventive step in the sense of Article 33(3) PCT.

3.1. Regarding claim 5:

In the prior art, it is standard to model perspective geometry and lighting of real scenes together and to apply the modelled characteristics during rendering of augmented surfaces, as exemplified in D2 (page 612, section 14.4.2, the first paragraph), D3 (page 3,7 and 12), D4 (figure 2 and page 13, the first column, the second paragraph), D5 (page 14, lines 4-7) and D6 (abstract, the sentence starting with "similarly, the true..."). Therefore, it is obvious that the skilled person

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/003269

in the art, starting with the subject-matter of D1 would use the source illumination model to have a more photo-realistic effect at the rendering stage.

3.2. Regarding claims 6,7:

D1 displays the source and target scenes over a network of perspective lines built by vanishing points and reference measures. This network itself is a directional indicator to indicate the orientation of patterns or ornamentation incorporated by means of the software into surface treatments to be displayed on the image of said surface, as seen in Figures 3 and 4. Therefore, the perspective lines of the network have the same functionality as the arrowheads disclosed in the current application. Representing the surface textures' orientation with arrowheads instead of such a perspective network is only a non-technical display alternative and does not involve any inventive step.

4. INDUSTRIAL APPLICABILITY:

The current set of claims 1-9 discloses technical features to implement a texture mapping method using physical characteristics of source surfaces and therefore, the subject matter of claims 1-9 is industrially applicable.

Re Item VIII**1. Clarity:**

According to the Rule 6.2a) PCT, claims shall not, except where absolutely necessary, rely, in respect of the technical features of the invention, on references to the description or drawings. In particular, they shall not rely on such references as: "as described in part..of the description," or "as illustrated in figure.. of the drawings." Therefore, claim 8 is not allowed.